IN THE CLAIMS:

Claims 1-5 (Canceled).

6. (Withdrawn) A fuel injector having a fuel inlet, a fuel outlet, and a fuel passageway extending from the fuel inlet to the fuel outlet along a longitudinal axis, the fuel injector comprising:

a body having an inlet portion, an outlet portion, and a body passage extending from the inlet portion to the outlet portion along the longitudinal axis;

an armature proximate the inlet portion of the body;

a needle operatively connected to the armature;

a swirl generator proximate the needle;

a seat disposed at the outlet portion of s aid body, the seat including a first surface exposed to the body passage and a second surface exposed to an exterior of the fuel injector, the first surface being spaced from the second surface a defined distance along the longitudinal axis, the first portion having at least one cutout configuration that extends from the first surface for a fraction of the defined distance into an interior of seat.

7. (Withdrawn) The fuel injector of claim 6, wherein the at least one cut-out comprises at least one volume that defines at least one wall in the interior of the seat.

8. (Withdrawn) The fuel injector of claim 7, wherein the at least one volume comprises one of a plurality of volumes and a channel.

9. (Withdrawn) The fuel injector of claim 8, wherein the swirl- generator comprises at least one flat disk;

wherein the seat includes a seat passage, the seat passage including a funnel extending between the first surface and the second surface; and

wherein the needle includes a curved surface that engages with a conical end of the funnel to inhibit fuel flow through the seat passage of the seat.

Claims 10-19 (Canceled)

20. (Currently Amended) A method of stabilizing temperature of a fuel injector in a direct injection application, the fuel injector having a body; an armature proximate an inlet of the body; a needle operatively connected to the armature; a seat disposed at the outlet of the body; and a swirl generator proximate the seat, the method comprising:

providing the needle with a substantially uniform cross-sectional area; and

selecting the body to surround the needle and form a body passage that surrounds substantially the entire needle, the body passage maintains an operative relationship between the body and the needle;

wherein fuel in the body passage transfers heat from the body directly to the needle to stabilize ~~maintain a minimum~~ temperature of at least a portion of the fuel injector ~~gradient~~ and to maintain an operative relationship between the body and the needle,

wherein the average cross-sectional area of the body passage is less than 2.25 times the substantially uniform cross-sectional area of the needle.

21. (Canceled)

22. (Original) A method of stabilizing temperature of a fuel injector in a direct injection application, the fuel injector having a body; an armature proximate an inlet of the body; a needle operatively connected to the armature; a seat disposed at the outlet of the body; and a swirl generator proximate the seat, the method comprising:

providing the needle with a substantially uniform cross-sectional area; and

selecting the body to surround the needle and form a body passage that surrounds substantially the entire needle, the body passage maintains an operative relationship between the body and the needle;

wherein fuel in the body passage transfers heat from the body directly to the needle to stabilize temperature of at least a portion of the fuel injector and to maintain an operative relationship between the body and the needle,

~~The method of claim 20~~, wherein the step of providing further comprises providing a substantially cylindrical member as the needle, and a cylindrical annulus as a neck of the body, the cylindrical annulus having an inner diameter that is no more than 50% greater than substantially uniform diameter of the substantially cylindrical member, and an outer diameter that is no less than 100% greater than the inner diameter.

23. (Currently Amended) The method of claim 22, further comprising:

providing the seat with a first surface exposed to the body passage ~~fuel passageway~~ and a second surface exposed to an exterior of the fuel injector; and

configuring at least one cut-out in the first surface to form a wall that extends into an interior of the seat.

24. (Previously Presented) The method of claim 23, wherein the at least one cut-out comprises a plurality of volumes, and each of the plurality of volumes is defined by a respective wall.

25. (Previously Presented) The method of claim 24, wherein each of the respective walls comprises a cylindrical side wall and an end wall.

26. (Previously Presented) The method of claim 24, wherein each of the plurality of volumes are disposed concentrically with respect to the needle.

27. (Previously Presented) The method of claim 26, wherein each of the plurality of volumes are disposed equiangularly about the needle.

28. (Withdrawn) The method of claim 23, wherein the at least one cut-out comprises an annular recess.

29. (Withdrawn) The method of claim 28, wherein the annular recess is disposed concentrically with respect to the needle.